Chapter 1

1. INTRODUCTION

1.1 ENVIRONMENTAL PROGRAM GOALS AND OBJECTIVES

LaRC is committed to conducting all operations in a safe, healthful and environmentally acceptable manner.

The LaRC goal is to plan and execute all actions and programs to minimize adverse effects on the quality of the environment without impairing the Center's mission. To achieve this goal, LaRC will:

- Develop and implement pollution prevention programs. Adopt source reduction and recycling practices to the extent technically possible and economically practicable.
- Manage the discharge of pollutants produced by LaRC activities in compliance with applicable regulations.
- Conserve and use natural and material resources wisely.
- Maintain, restore, and enhance the visual attractiveness and productivity of the natural and man-made environment.
- Communicate on its own behalf about its operations through open and responsive public information.
- Demonstrate initiative and leadership in forming and executing all programs that contribute to the nation's goal of preserving and enhancing the environment.

1.2 RESOURCE ALLOCATION

Necessary resources will be dedicated to sufficiently protect the environment. Local resources will be used when appropriate; however, in situations of non-compliance where funding and resources are required beyond those available locally, action will be initiated through the EMO to obtain funding support from NASA Headquarters.

1.3 ACCOUNTABILITY

When federal sovereignty is waived, as is the case with regard to the applicability of many environmental laws to Federal facilities, individuals may be indicted for failing to comply with a lawful standard. Many factors, too numerous and complex to discuss in this manual, contribute to one's personal risk of incurring criminal or civil penalties for knowingly violating environmental laws.

Citations and fines for violations of environmental laws and regulations are dependent upon the applicable law and the nature of the violation. Charges can range anywhere from civil charges for non-compliance to criminal charges for willful violation and/or

withheld or falsified information. Penalties can range from an injunction to fines of up to $50,000 per day and 3 years in prison depending on the nature of the violation.

1.4 RESPONSIBILITY

Conducting operations in an environmentally acceptable manner is each employee's responsibility. Achieving LaRC's goals and objectives requires support and cooperation from all employees.

LAPD 8800.1 specifies management and organization general responsibilities for the Environmental Program. Each chapter of this handbook details specific responsibilities for carrying out that effort.

1.9 RECORDS

Langley Form 44, “Hazardous Materials”

Langley Form 163, “Waste Material Data Sheet”

Langley Form 461, “NEPA Environmental Checklist”

Chapter 2

2. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

2.1 GENERAL

This Chapter establishes procedures at LaRC to identify and assess the environmental impact of proposed programs or projects. It also provides guidelines to ensure that environmental impact analysis is part of new projects during the conceptual study phase. The procedures are applicable to all LaRC employees and contractors who in any way participate in the development of projects, and the management of operations that may have an impact on the environment.

Environmental impact analysis must be a part of the earliest thinking on any proposed action or project. It requires continued evaluation and update as the proposed action develops. Environmental analyses, environmental assessments (EA), and where necessary, environmental impact statements (EIS) are used throughout the decision-making process of new or changed actions.

2.2 REQUIREMENTS

The National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code (U.S.C.) 4321 et seq.) establishes national policy concerning the protection and the enhancement of the environment. It requires Federal agencies to prepare detailed documentation on any action undertaken that could result in a significant impact on the environment. NASA NPG 8580.1, "Implementing the Provisions of the National Environmental Policy Act and Executive Order 12114," formalizes NASA policy in this area.

2.3 ENVIRONMENTAL DOCUMENTATION

LaRC personnel or offices initiating actions covered by NEPA must prepare environmental analyses, assessments and impact statements in accordance with the requirements of this Chapter, NPG 8580.1, and other relevant Federal environmental laws, regulations, and Executive Orders. Preparation of these documents must be coordinated with the EMO early in the process.

2.3.1 Major Decision Points

Environmental documentation shall be linked to major decision points as follows:

A. Completion of an environmental assessment and the determination as to whether an EIS is required must be made **prior** to the decision to proceed from the conceptual study phase to a detailed planning/definition phase of the proposed action. This determination must be concurrent with:

1. Proposal of a research and development (R&D) project for detailed planning and project definition;

2. Proposal of a major construction of facilities (CoF) project for detailed planning and project definition;

3. Proposal of an institutional action (other than a facility project) for detailed planning and definition; and

4. Proposal of a plan to define changes in an approved project.

B. If required, the final EIS shall be completed and distributed **prior** to the decision to proceed from the detailed planning/definition phase to the development/construction (or implementation) phase of the proposed action. For example, the EIS shall be completed by and incorporated with:

1. Proposal of an R&D project for development/construction;

2. Proposal of a major CoF project for development/ construction;

3. Proposal to undertake a significant institutional action (or other facility project); and

4. Proposal to implement a program change.

2.3.2 Review and Documentation

Figure 2-1 provides a general overview of the environmental (NEPA) review and documentation process at LaRC. The first step of the process is to review the action or project using the Environmental Analysis Checklist provided in NASA Langley Form 461, “NEPA Environmental Checklist.” The checklist is designed to assist the initiator in determining if the action has the potential to produce any type of environmental effect or impact.

The checklist provides a series of "YES-NO" type questions spanning all possible areas of activities that might result in an environmental impact. If, after having completed the checklist, all of the questions are answered "NO", the action is considered to have no potential to produce an environmental impact and is excluded from further environmental review. However, the initiator must document his/her review via a Record of Environmental Consideration (REC). An example of a REC is shown in Figure 2-2. After completing the REC and obtaining concurrence from the Head, EMO, the initiator must place it in the project files with the completed checklist. No further documentation is required. The REC must be addressed at the Preliminary Design Review and in the Preliminary Engineering Report, if one is prepared.

If, however, one or more of the questions on the checklist are answered with a "YES", the project initiator must prepare a detailed environmental analysis. The EMO may be contacted at extension 43500 for assistance in preparing the analysis. The initiator must gather information to determine the nature and extent of the impact(s). For example, if the question concerns the discharge of substances into the environment, the initiator must determine: the type of discharge, its volume, the duration and point of discharge, and any other pertinent information.

This information is used to determine whether or not the action will, or has the potential to, produce environmental impacts. If a review of the information in the environmental analysis shows that there will be no environmental impact, the review is complete. The initiator must then complete and sign a REC, Figure 2-2, and obtain the concurrence of the EMO. The REC must then be placed in the project file with the data and documentation compiled during the analysis and the completed checklist. This REC must also be addressed at the Preliminary Design Review and in the Preliminary Engineering Report, if one is prepared.

If the detailed environmental analysis shows that the action might have a significant impact on the environment, the project initiator must prepare an environmental assessment. In some cases during completion of the environmental checklist, it will become apparent that the action will produce a significant environmental impact. In these cases the detailed environmental analysis step may be skipped. The initiator should proceed to the EIS. This is particularly true for actions that deal with wetlands, floodplains, or cultural resources.

2.3.3 Environmental Assessment (EA)

Table 2-1 lists specific NASA actions that require an environmental assessment. For these actions, project initiators should proceed directly to the environmental assessment. The environmental assessment form and its contents must comply with the format and content required by NPG 8580.1. In addition to these actions, under the Council of Environmental Quality (CEQ) regulations, any action that is not specifically considered to require an EIS or which is not specifically a categorical exclusion, must be treated as environmental assessment-type activity. Table 2-3 lists the activities that are categorically excluded from the requirements for an EA.

If the environmental analysis indicates that the proposed action will have an impact (either adverse or beneficial) on the environment, an environmental assessment is required. The environmental assessment will evaluate the possible environmental impact in terms of its short and long-term significance. The complexity of an assessment will vary according to the subject matter and the significance of the impact.

The environmental assessment and the determination as to whether an EIS is required must be made **prior** to the decision to proceed from the conceptual study phase to the detailed planning/definition phase of the proposed action.

Once the environmental assessment is signed by the Head, EMO, and Center Director, it is then sent to NASA Headquarters for review and concurrence. **Early involvement by the EMO in preparation of the environmental assessment is imperative.**

If it has been determined that an EIS is not required, the EMO will prepare a "Finding of No Significant Impact" (FONSI) and send it to NASA Headquarters for review and approval. The FONSI will summarize the assessment and include reasons why an EIS is not required.

2.3.4 Environmental Impact Statement (EIS)

NASA actions expected to have a significant effect on the quality of the environment shall require an EIS. Table 2-2 is a listing of NASA actions that require an EIS. An environmental assessment is not required for these actions. When it has been determined that an EIS is required, a "Notice of Intent to Prepare an EIS" is also required. The EMO staff will coordinate the preparation and processing of the EIS in accordance with the provisions of NASA NPG 8580.1, and the provisions of the CEQ Regulations for Implementing the Procedural Provisions of NEPA (40CFR Parts 1500-1508). Table 2-3 lists the activities that are categorically excluded from the requirements of an EIS.

NASA Headquarters must agree that an EIS is or is not required for any major project at LaRC. The EMO will establish external and internal processing for each EIS on a case-by-case basis.

The final EIS shall be completed and distributed in accordance with the CEQ regulations **prior** to the decision to proceed from the detailed planning-definition phase to the development-construction phase (or implementation) phase of the proposed project or action.

2.4 RESPONSIBILITIES

2.4.1 Facilities and Equipment Support Services (FESS)

The LaRC Contracting Officer’s Technical Representative (COTR) shall ensure the contractor:

- Identifies projects that may affect the environment.

- Initiates environmental documentation as required by this Chapter.
- Coordinates activities related to environmental quality with the EMO.

2.4.2 Project Initiator

- Coordinate with the EMO early in the project development.
- Prepare, or fund the preparation of, the required NEPA documentation as described in this Chapter.
- Maintain project documentation as required in Paragraph 2.3.

2.4.3 Environmental Management Office

- Assist the project initiator as required.
- Serve as the point of contact for all required off-center coordination (NASA Headquarters, other Federal agencies, State, and local agencies).
- Process the EA or EIS in accordance with NPG 8580.1 to include the following actions:

    1. Coordinate internal review of the draft EIS and EA and plan for coordination with State, and local agencies or organizations.
    2. Submit the draft EIS to the EPA, through NASA Headquarters Environmental Management Division, Code JE.
    3. Coordinate review of the draft EA or EIS and final EA or EIS by other Federal, State, and local agencies, organizations, and interested parties, including preparation of responses to their comments.
    4. Prepare responses to comments on the final EIS and EA.
    5. Provide for public availability of the EIS and EA.
    6. Ensure that necessary actions are taken to meet the applicable requirements of environmental laws and regulations.

2.4.4 Personnel Initiating Projects

- Coordinate with the EMO in identifying programs and projects that may affect the environment and activities related to environmental quality.
- Prepare and maintain NEPA documentation as required in Paragraph 2.4.
- Coordinate activities related to environmental quality with the EMO.

Figure 2-1

Overview of the NEPA Process

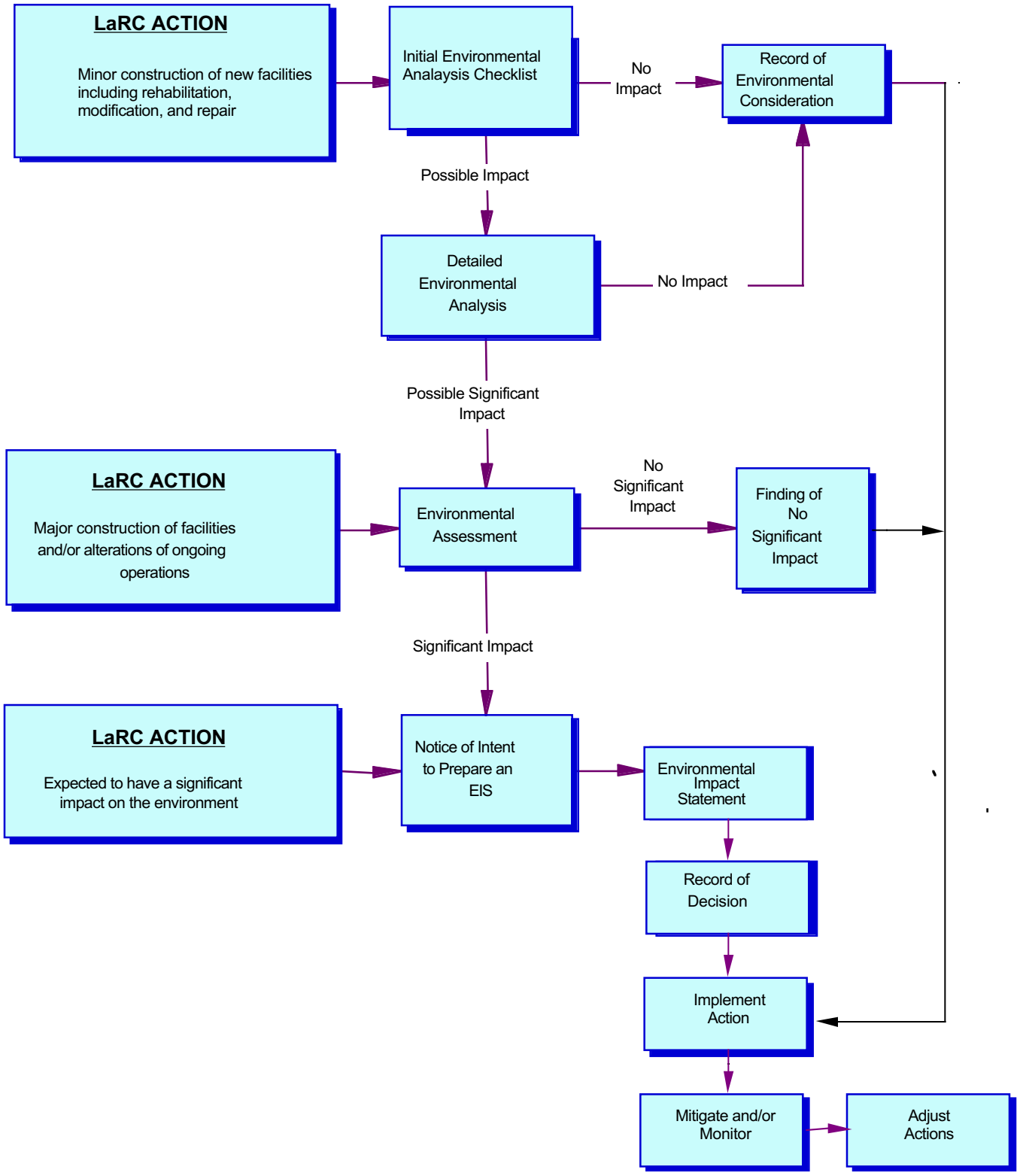

Figure 2-2

Record of Environmental Consideration (Example)

1. Project Title.

2. Description of proposed action.

3. Anticipated date and/or duration of proposed action.

4. It has been determined that the above action (choose one).

   a. Is adequately covered in an existing EA_____EIS_____ entitled _____ and dated _____.

   b. Qualifies for Categorical Exclusion # ___, (Table 2.3, LaRC Environmental Manual) and has no special circumstances which would suggest a need for an environmental assessment.

   c. Is exempt from NEPA requirements under the provisions of (site superseding law).

   d. Has no environmental impact as indicated by the results of an Environmental Analysis Checklist and/or a Detailed Environmental Analysis. (Attach Checklist or Environmental Analysis as applicable).

SIGNED: _____ DATE: _____
(Office responsible for proposed action)

SIGNED: _____ DATE: _____
Head, Environmental Management Office, OSEM

Table 2-1

LaRC Actions Requiring an Environmental Assessment

Specific LaRC actions which require an EA are:

1. Specific spacecraft development and flight projects in space science.
2. Specific spacecraft development and flight projects in space and terrestrial applications.
3. Specific experimental projects in aeronautics and space technology and energy technology applications.
4. Development and operation of new space transportation systems and advanced development of new space transportation and spacecraft systems.
5. Reimbursable launches of NASA spacecraft or payloads.
6. Major Construction of Facilities projects.
7. Actions to alter ongoing operations at LaRC which could lead, either directly or indirectly, to natural or physical environmental effects.

Table 2-2

LaRC Actions Requiring an Environmental Impact Statement

Specific LaRC actions which require an EIS are:

1. Development and operation of new launch vehicles.
2. Development and operation of space vehicles likely to release substantial amounts of foreign materials into the earth's atmosphere or into space.
3. Development and operation of nuclear systems, including reactors and thermal devices used for propulsion and/or power generation. Excluded are devices with millicurie quantities or less radioactive materials used as instrument detectors and small radioisotope heaters used for local thermal control, provided they are properly contained and shielded.

Table 2-3

NASA EA/EIS Categorical Exclusions

The following activities are categorically excluded from the requirements for EA's and EIS's:

1. Research and Development (R&D) activities in space science (for example, physics and astronomy research and analysis, planetary exploration mission operations and data analysis) other than specific spacecraft development and flight projects.

2. R&D activities in space and terrestrial applications (for example, resource observations applied research and data analysis, technology utilization) other than specific spacecraft development and flight projects.

3. R&D activities in aeronautics and space technology and energy technology applications (for example, research and technology base, systems technology programs) other than experimental projects.

4. R&D activities in space transportation systems engineering and scientific and technical support operations, routine transportation operations, and advanced studies.

5. R&D activities in space tracking and data systems.

6. Facility planning and design (funding).

7. Minor construction of new facilities including rehabilitation, modification, and repair.

8. Continuing operations of a NASA installation at a level of effort, or altered operations, provided the alterations induce only social and/or economic effects, but no natural or physical environmental effects.

NOTE: Even though an action may be categorically excluded from the need for a formal environmental assessment or EIS, **it is not excluded from the requirement for an environmental analysis conducted during the earliest planning phases**. If that analysis shows that the action deviates from the criteria for exclusion and it is concluded that there may be significant environmental effects, an environmental assessment must be completed. Based on that assessment, a determination must then be made whether or not to prepare an EIS.

For more detailed flowcharts of NEPA guidance, refer to NPG 8580.1.

Chapter 3

3. WATER QUALITY

3.1 GENERAL

The Clean Water Act (CWA) regulates discharge of pollutants into waters of the U.S. from any point source including industrial facilities and sewage treatment plants. It also regulates storm water runoff from certain industrial sources and requires reporting and cleanup of oil and hazardous substance spills in waterways. The objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters". Section 313 (a) of the CWA requires Federal agencies to establish pollution controls. Under the CWA it is illegal for any person, including Federal agencies, to discharge pollutants from a point source without a permit. The Environmental Protection Agency has granted the Commonwealth of Virginia Water Control Board authority to issue these permits under the Virginia Pollutant Discharge Elimination System (VPDES).

3.2 REQUIREMENTS

LaRC operates under two water discharge permits, one from the State (VPDES) and one issued by the Hampton Roads Sanitation District (HRSD). Any discharge not allowed under these permits is a violation of the CWA.

3.2.1 VPDES State Permit

VPDES Permit No. 0024741 allows LaRC to discharge effluent to surface waters and specifies the allowable discharges, the pollutant limitations, and the monitoring requirements. Information regarding monitoring locations and VPDES authorized discharges can be obtained by calling the Environmental Management Office at extension 43500.

3.2.2 HRSD Permit

HRSD Permit 0085 allows LaRC to discharge nonhazardous industrial wastewater and sanitary sewage to the HRSD sanitary sewer system. HRSD does not provide treatment for hazardous wastes. The HRSD Permit specifies the allowable discharges, the pollutant limitations, and monitoring requirements.

3.2.3 Storm Water Permit

The VDEQ requires that LaRC's storm water discharge be included as part of the Center's VPDES State Permit. Four Outfalls are permitted for storm water discharge only and no sampling is required at these sites.

3.3 RESPONSIBILITIES

3.3.1 Facility Environmental Coordinators (FEC's)

- Have knowledge of materials used in their areas of responsibility and operations that may result in potential release of water pollutants.

- Contact the EMO at extension 43320 to determine alternative disposal options in situations where surface water or sanitary discharge is not permissable.

- Schedule periodic training to assure facility personnel are aware of the Center's water quality requirements and allowable discharges.

In the event of a permit violation, FEC's shall participate in the investigation to determine the cause of the discharge and recommend remedial action to prevent reoccurrence.

3.3.2 Environmental Management Office (EMO)

- Monitor and report as required by the permits and maintain all related files.

- Serve as the point of contact for LaRC with regulatory agencies. In the event of a permit violation, the EMO shall coordinate the investigation and submit findings to the permitting agency, as necessary.

- Approve or disapprove discharges from on-site contractor operations.

3.3.3 Supervisory Personnel

- Assure that employees under their supervision are aware of permit requirements and act to prevent unpermitted discharges.

3.3.4 Individual Employees

- Assure that materials they are responsible for are disposed of properly and in accordance with permit requirements.

3.3.5 On-Site Contractors

Contracting Officer Technical Representatives (COTR's) shall ensure that any contractors working under them obtain approval from the EMO before the start of any operations that have discharges of any type to the environment.

Continue to Next Section